REMARKS

At the outset, Applicants wish to thank Examiner Mosher for taking the time to discuss this application with Applicants' representative, Chalin Smith. Accordingly, the amendments and remarks herein are in response to the Final Office Action of August 5, 2004 and commensurate with the telephonic interview of September 15, 2004. In particular, Applicants have amended the claims as follows:

- Claims 11, 12, and 15 are amended to correct improper dependency;
- Claims 16 and 17 are canceled for being redundant;
- In claim 11, the host cell is defined as being "a tissue culture cell"; and
- In claim 12, the recitations related to "allantoic fluid" are canceled.

Support for the above amendments are found in the specification as originally filed, particularly at p. 14, lines 9-20 ("Preferred hosts . . . [are] exemplied by mammalian cells of various tissue-origin in culture"; "proteins. . .can be recovered. . . from the culture medium when cultured cells are the host"). Applicants submit that no new matter has been added.

Pursuant to this amendment, claims 1, 4-13, 15, 18, 20, 22, 27, and 28 are pending in the application.

Claim Rejections Under 112, Second Paragraph

In the Final Office Action of August 5th, the Examiner rejected claims 11-12 and 15-17 under 35 U.S.C. § 112, second paragraph, as being indefinite for depending from canceled claims. In order to expedite prosecution, Applicants have amended claims 11, 12, and 15 to depend from claim 1 rather than canceled claims 3 or 14. In addition, Applicants have canceled claims 16 and 17 as being redundant of claims 4 and 5.

Applicants respectfully submit that these amendments render the rejection moot and respectfully request reconsideration and withdrawal of the rejection.

Claim Rejections Under 112, First Paragraph

The Examiner rejected claim 27 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, more particularly, for containing new matter. According to the Examiner, the specification as originally filed did not reasonably convey any desire to choose the NP, P, or L genes for deletion or inactivation.

Applicants respectfully disagree. The standard for determining compliance with the written description requirement is "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed." Moreover, the MPEP further states that the "subject matter of the claim need not be described literally (i.e., using the same terms or *in haec verba*) in order for the disclosure to satisfy the description requirement." MPEP § 2163.03. Instead, the inquiry is whether one following applicant's specification would necessarily select the later claimed subject matter. The question, therefore, is whether the originally filed application would have conveyed to a person of ordinary skill in the art that applicants invented the subject matter later claimed by them including the limitations in question.

In this case, Applicants respectfully submit that the phrase "reduce the transcription and replication capabilities" at p. 15, lines 12-13 reasonably conveys to one skilled in the art that the transcription and replication capabilities, governed by the NP, P, and L genes, may be reduced to zero. For example, at p. 15, line 22 to pl. 16, line 2, the recombinant virus vector of the instant invention is described as useful in elucidating mechanisms of viral replication. For this purpose, one would readily select a Sendai viral vector having one or more replication genes deleted or inactivated.

In response to the Examiner's suggestion that the instant specification teaches away from such an embodiment, Applicants note that the cited passage at p. 2 merely defines the "disseminative capability", i.e., "the capability to form infectious particles. . . and successively disseminate them to other cells following the transfer of nucleic acid into host cells by infection or artificial techniques and the intracellular replication of said nucleic acid." However, this does not imply that the intracellular replication must be performed by the virus itself. In fact, as noted elsewhere in the specification, disseminative viral particles can be produced using exogenous and/or heterologous NP, P, and L proteins. See, for example, p. 12, lines 23-27 ("If cells which

express all viral proteins (N, P, and L) required for initial transcription, replication, and encapsidation are constituted, the recombinant Sendai virus can be produced without using helper virus such as vaccinia virus.") Accordingly, it is readily apparent that a Sendai viral vector of the present invention may be deficient in the NP, P, and/or L genes.

Furthermore, throughout the specification Applicants explicitly state that in a preferred embodiment, *any* desired viral gene may be deleted or inactivated, so long as the disseminative capability is retained. See, for example, p. 8, lines 25-27 and p. 13, lines 18-21. At this point, it may be helpful to review the life cycle of the Sendai virus. The process begins with infection (i.e., adsorption and penetration). Infection of a host cell results from the coordinated effort of two envelope glycoproteins, the hemagluttin/neuraminidase (HN) protein and the fusion (F) protein. The HN protein recognizes and binds to receptors on the host cell surface and the F protein facilitates fusion between and penetration of the membranes. Once penetration is achieved, the helical nucleocapsid of the virus is released into the infected cell. The process of viral multiplication (i.e., transcription, translation and replication) occurs in the cell cytoplasm and involves the nucleocapsid (NP) protein as well as two RNA polymerases (P and L), which together form a ribonucleoprotein complex (RNP). Once a sufficient number of viral copies are produced, the process of dissemination (i.e., assembly and budding) begins. Viral glycoproteins HN and F are translated as transmembrane proteins and transported to the cell plasma membrane. The matrix (M) protein enables newly synthesized nucleocapsids to interact with the regions of the plasma membrane which have the glycoproteins inserted. New virus then buds out through the membrane and seeks out non-infected host cells, wherein the process begins anew.

Accordingly, one skilled in the art, upon reading that any desired viral gene may be deleted or inactivated, so long as the disseminative capability is retained, would readily recognize that while the viral genes associated with dissemination (i.e., M, F, and HN) are preferably maintained, the viral genes associated with replication (i.e., NP, P, and L) may be deleted or inactivated, particularly since the instant specification teaches that the replication function may be performed by exogenous or heterologous entities, such as co-transfected plasmids, helper viruses, modified host cells, and the like.

Accordingly, Applicants respectfully submit that the invention of claim 27 is supported by the specification as originally filed and respectfully request reconsideration and withdrawal of the rejection.

Obviousness-Type Double Patenting

The Examiner rejected claims 7-9, 11, 12, 20, and 22 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-10 of U.S. Patent No. 6,514,728. Applicants respectfully submit that the amendments and remarks herein render this rejection moot. Specifically, obviousness-type double patenting requires rejection of an application claim only when the claimed subject matter is not patentably distinct from the subject matter claimed in a commonly owned patent and when the issuance of a second patent would provide unjustified extension of the term of right to exclude granted by a patent. See *Eli Lilly & Co. v. Barr Labs., Inc.*, 251 F.3d 955, 58 USPQ2d 1865 (Fed. Cir. 2001). Importantly, assessment of obviousness is limited to the claims at issue; the patent disclosure may not be used as prior art.

In this case, the '728 patent has claims directed to a process for preparing a cytokine using a recombinant, foreign gene-carrying Sendai virus (claims 1-6); a chicken egg infected with a recombinant, foreign gene-carrying Sendai virus (claims 7-9); and the chorioallantoic fluid composition isolated from such a chicken egg (claim 10). Applicants respectfully submit that the subject matter of the pending claims is patentably distinct from the patented subject matter and that issuance of the instant claims would not result in an unjustified extension of the term of right to exclude granted by a patent.

For example, pending claims 8 and 22 are directed a method for producing a recombinant, foreign gene-carrying Sendai virus. Applicants note that the Examiner previously indicated that the obviousness-type double patenting rejection was withdrawn for claims directed to a method of producing a vector. Accordingly, it is appears that the inclusion of claims 8 and 22 in this rejection is in error. In any event, Applicants respectfully submit that a method of making a desired product (herein, a recombinant, foreign gene-carrying Sendai virus) is patentably distinct from a method of using such a product as well as subsequent compositions

resulting from such a use. Accordingly, Applicants respectfully submit that the subject matter of claims 8 and 22 is patentably distinct from the patented subject matter and that issuance of the instant claims would not result in an unjustified extension of the term of right to exclude granted by a patent.

With respect to claim 11, Applicants have restricted the host cell to a tissue culture cell, thereby excluding chicken eggs. Similarly, with respect to claim 12, Applicants have deleted all references to allantoic fluid, focusing instead on a cell culture medium. Applicants note that the process for preparing cytokines using a Sendai virus expression system as described in the '728 patent involves the steps of: (1) constructing the desired SV genome (including a foreign gene); (2) introducing this SV construct into suitable cultured cells expressing transcription and replication enzymes (e.g., the NP, P, and L proteins); (3) isolating the recombinant SV from the cell culture medium; and (4) infecting hens' eggs with this virus to allow for the expression of the foreign gene in the chorioallantoic fluid of the egg. See '728 patent, first paragraph under "Detailed Description of the Invention". Applicants further note that the '728 disclosure is particularly limited to chicken eggs and allantoic fluid. Accordingly, Applicants submit that in the context of both the pending and patent claims, chicken eggs and tissue culture cells are distinct, non-analogous elements, neither art-accepted equivalents nor obvious variants. Similarly, a cell culture media is structurally and functionally distinct from allantoic fluid. Accordingly, Applicants respectfully submit that the subject matter of claims 11 and 12 as amended herein is patentably distinct from the patented subject matter and that issuance of the instant claims would not result in an unjustified extension of the term of right to exclude granted by a patent.

Finally, with respect to kit claims 7, 9, and 20, Applicants respectfully submit that none of the patent claims are directed to a "cell expressing Sendai viral proteins NP, P, and L", a necessary element of claims 7, 9, and 20. Furthermore, nowhere in the '728 disclosure is there a suggestion that the chicken egg of patent claim 7 is capable of expressing, much less actually expresses Sendai viral proteins NP, P, and L. In fact, as noted above, it is the tissue culture cell utilized in a precursor step that expresses the Sendai viral proteins NP, P, and L so as to facilitate reconstitution of functional Sendai viral particles which, in turn, may be used to infect other host

cells, such as chicken eggs. In other words, while the initial host cells expressing Sendai viral proteins NP, P, and L are used to reconstitute the Sendai virus, the chicken eggs are merely used to proliferate the reconstituted virus. Accordingly, it is readily apparent that the chicken eggs of patent claims 7 *et seq.* are structurally and functionally distinct from the "cells" of pending claims 7, 9, and 20. Accordingly, Applicants respectfully submit that the subject matter of claims 7, 9, and 20 is patentably distinct from the patented subject matter and that issuance of the instant claims would not result in an unjustified extension of the term of right to exclude granted by a patent. Moreover, since the method of producing the Sendai viral vector of pending claims 8 and 20 is patentably distinct from the subject matter claimed in the '728 patent for the reasons given above, kits used in such a method (i.e., pending kit claims 7, 9, and 20) are likewise patentably distinct.

Thus, as pending claims 7-9, 11, 12, 20, and 22 are patentably distinct from claims 1-10 of U.S. Patent No. 6,514,728, Applicants respectfully request reconsideration and withdrawal of the above obviousness-type double patenting rejection.

The Examiner further rejected claims 1, 4-11, 13, 15-18, 20, 22 and 28 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of U.S. Patent Nos. 6,723,532, 6,645,760, and/or 6,746,860. To expedite prosecution, Applicants submit herewith a terminal disclaimer under 37 C.F.R. § 1.321 for each of these patents. Accordingly, Applicants respectfully request reconsideration and withdrawal of these rejections.

Provisional Obviousness-Type Double Patenting

Various claims stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of the following co-pending applications: Serial Nos. 09/720,979, 09/823,699; 09/843,922; 10/111,356; 10/181,646; 10/312,476; 10/316,530; 10/316,535; 10/398,598; and 10/444,661. However, the Examiner noted in the Final Office Action of August 5th that "once provisional double patenting rejections constitute the only remaining issue, it is proper to withdraw the rejections in one of the two applications (i.e., in this application if it is the first to mature)." Applicants respectfully submit that the only issues

remaining at this juncture are indeed the provisional obviousness-type double patenting rejections and respectfully request reconsideration and withdrawal thereof in accordance with USPTO policy.

Conclusion

In sum, Applicants respectfully submit that the response herein fully addresses rejections set forth in the outstanding Office Action. Applicants further submit that claims 1, 4-13, 15, 18, 20, 22, 27, and 28 presented herein are in condition for allowance and respectfully petition for entry of the above-noted amendments and an early notice of allowance. In any event, if the Examiner believes a conference would expedite prosecution, she is cordially invited to contact the undersigned.

The previous Office Action set forth a three-month period for response, response being due on or before **November 5, 2004**. Accordingly, Applicants submit that this response is timely and no additional fee is required. However, in the event that additional fees are required, the Commissioner is authorized to charge such fees to our Deposit Account No. 50-2101.

Respectfully submitted,

Date: 09/22/04

By: _____

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